

## EXCERPTS FROM THE DEPARTMENT RECORD

### 4. WILDLIFE:

#### a. Information submitted by Evergreen Wind Power III, LLC

680



GOVERNOR  
John E. Baldacci



COMMISSIONER  
Roland D. Martin

Wildlife Division  
73 Cobb Road  
Enfield, ME 04493

July 16, 2007

Jessica Haider  
Project Assistant  
Woodlot Alternatives, Inc.  
30 Park Drive  
Topsham, Maine 04086

Dear Jessica:

As requested, MDIF&W has reviewed the maps you provided for any Essential and Significant Wildlife Habitats in T4 R3 WELS, Lincoln, and Lincoln/Lee/Winn, Maine. The following is a summary of our findings:

**Essential Habitats:**

Essential Habitats are defined as "areas currently or historically providing physical or biological features essential to the conservation of an endangered or threatened species in Maine and which may require special management considerations". Essential Habitat protection in Maine currently applies to bald eagle, roseate and least terns, and piping plover nest sites. Additional listed species may receive attention in the future.

**Oakfield Hills Site in T4 R3 WELS, Maine**

There are no Essential Habitats associated with this project location (please refer to the enclosed map). The northern portion of this project location is within the jurisdiction of the Ashland Regional Wildlife Office.

**Rollins Mountain Site in Lincoln/Lee/Winn, Maine**

There are no Essential Habitats associated with this project location (please refer to the enclosed map).

**Bagley Mountain Site in Lincoln, Maine**

There are no Essential Habitats associated with this project location (please refer to the enclosed map).

**Significant Wildlife Habitats:**

The Natural Resources Protection Act (NRPA), administered by the Maine Department of Environmental Protection (DEP), provides protection to certain natural resources including Significant Wildlife Habitats. Significant Wildlife Habitats are defined by the NRPA as:

*Habitat for state and federally listed endangered and threatened species.*

High and moderate value deer wintering areas (DWAs) and travel corridors.

High and moderate value waterfowl and wading bird habitats (WWHs), including nesting and feeding areas.

Shorebird nesting, feeding, and staging areas.

Seabird nesting islands.

**Oakfield Hills Site in T4 R3 WELS, Maine**

There is a mapped Waterfowl and Wading Bird Habitat (WWH) UMO-4268 to the west of the project location that is associated with the East Branch of the Mattawamkeag River (please refer to the enclosed map). The northern portion of this project location is within the jurisdiction of the Ashland Regional Wildlife Office.

**Rofine Mountain Site in Lincoln/Lee/Winn, Maine**


There is a mapped Waterfowl and Wading Bird Habitat (WWH) IFW-111721 on the southeast border of the project location (please refer to the enclosed map).

**Bagley Mountain Site in Lincoln, Maine**

There are no Significant Wildlife Habitats associated with this project location.

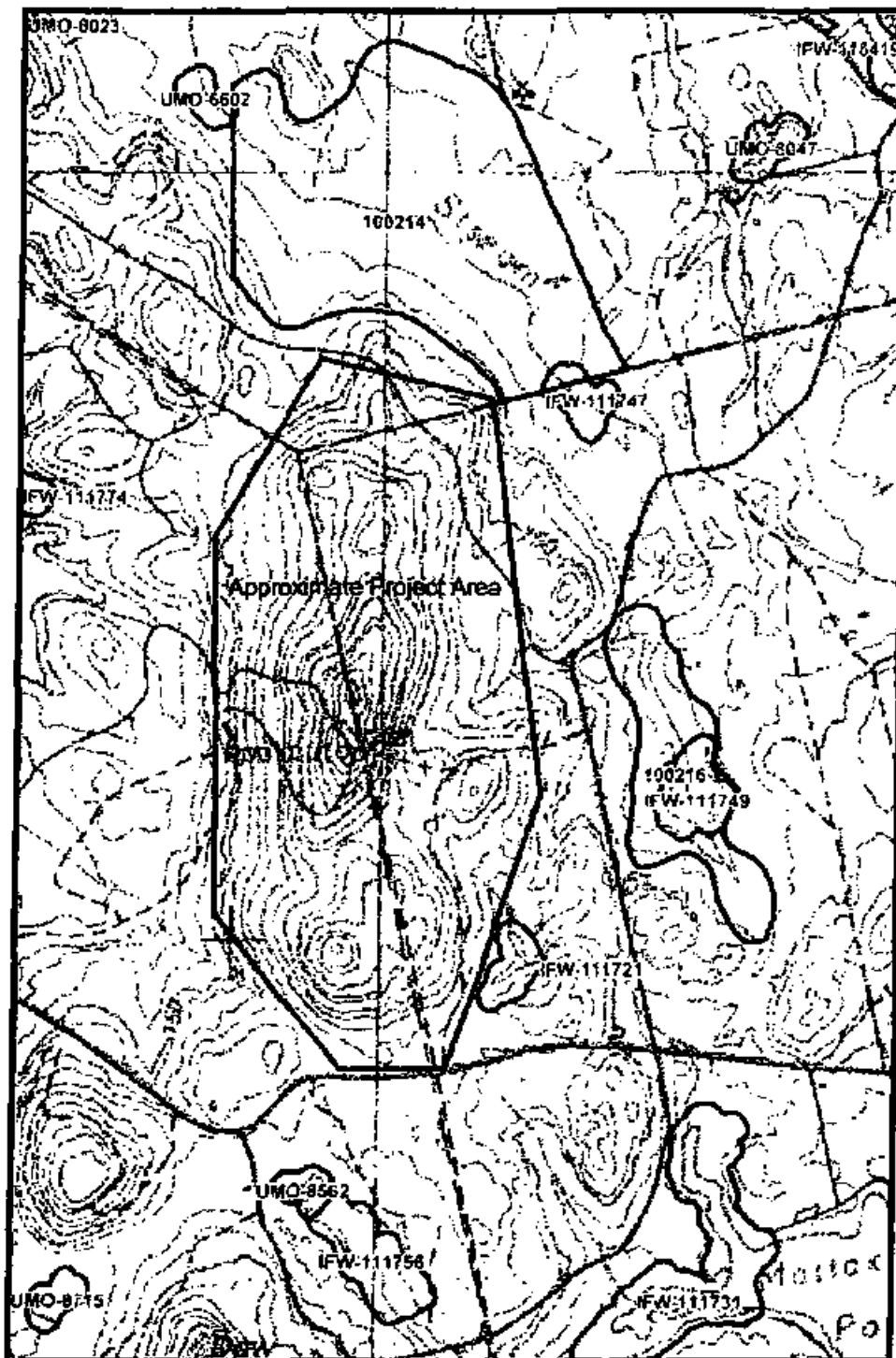
If you need any more information or clarification of the information provided please contact us at 732-4132 or at the address listed below. Thank you for your request for wildlife habitat information.

Sincerely,



Allen R. Starr  
Asst. Regional Wildlife Biologist  
Phone: 207-732-4132  
Fax: 207-732-4405  
E-Mail: allen.starr@maine.gov

**Search for Wildlife Observations & Habitat -  
Request from Woodlot Alternatives, Inc.  
for Lincoln/Lee/Winn, Maine**



- Bald Eagle Nest Site
- Piping Plover / Least Tern  
Nesting, Feeding, & Brood-  
rearing Area
- Roseate Tern  
Nesting Area
- Deer Winter Area
- Inland Waterfowl / Wading  
Bird Habitat
- Tidal Waterfowl / Wading  
Bird Habitat
- Seabird Nesting Island
- Shorebird Area
- Biological Conservation  
Database Rare Species  
or Habitat Observation
- Township Boundary
- County

0 0.4 0.8 1.2 1.6 Miles

1:48,000

UTM Projection, Zone 19N, NAD83



73 Cobb Road  
Enfield, ME 04493  
Voice: (207) 732-4132  
Fax: (207) 732-4405  
July 16, 2007





October 11, 2007

Amy Lemelin  
 Maine Department of Environmental Protection  
 Central Maine Regional Office  
 17 State House Station  
 Augusta, Maine 04333-0017

**Subject: Significant Wildlife Habitat(s) Information Request**

Dear Ms. Lemelin:

On behalf of Project Manager Joy Prescott, I am requesting information on any Significant Wildlife Habitat(s) regulated under the Natural Resources Protection Act associated with land depicted on the attached map. Two alternatives for the transmission line associated with a proposed wind project are being considered and are identified on the enclosed map as "northern route" and "western route".

If you have any questions, please contact Joy at (207) 729-1199. Thank you for your assistance in obtaining this information.

Cordially,  
 STANTEC CONSULTING

*Lisa MacDonald*

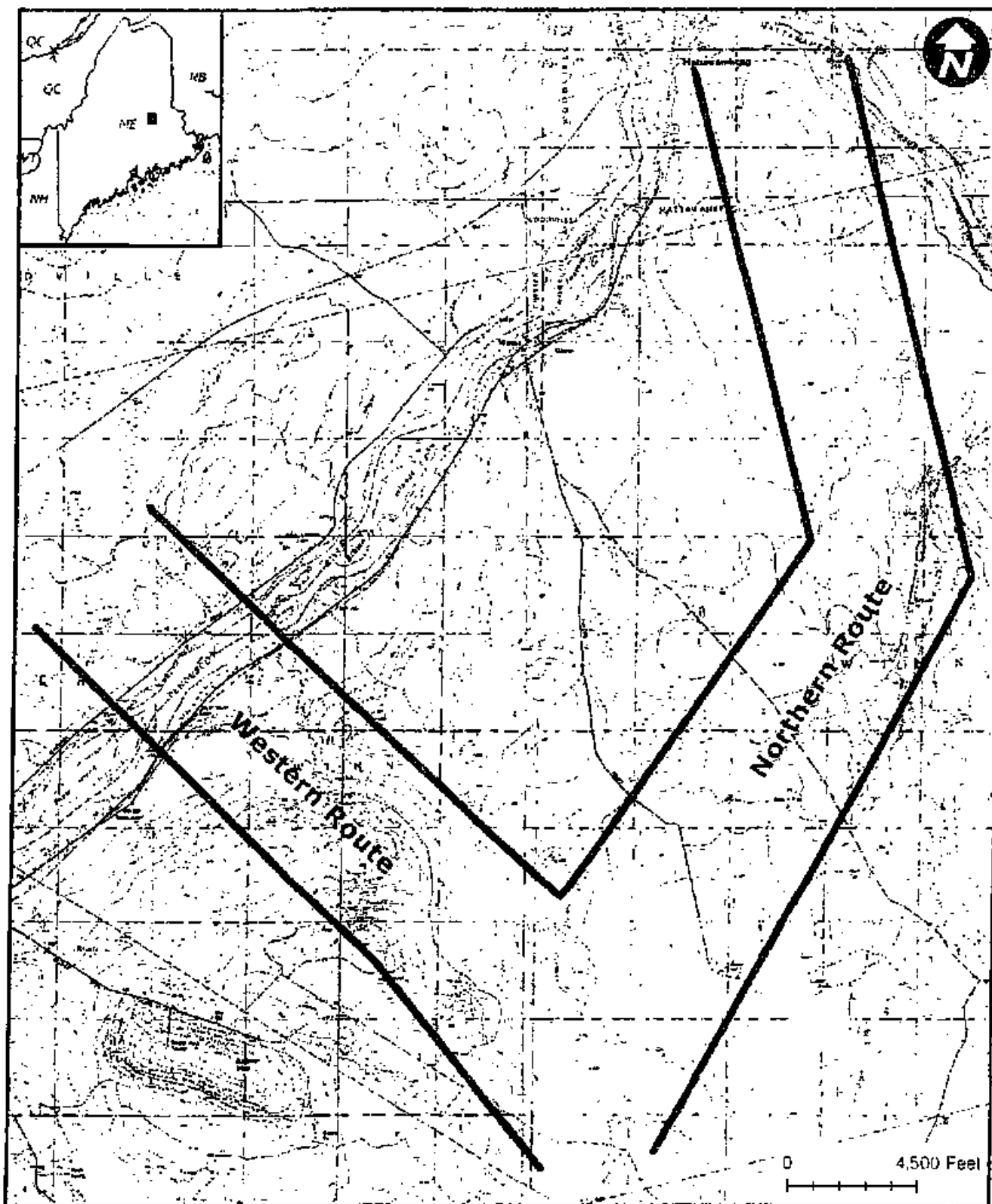
Lisa MacDonald  
 Administrative Assistant

Tel: 207-729-1199  
[lisa.macdonald@stantec.com](mailto:lisa.macdonald@stantec.com)

attch: Figure 01

WAI# 107206

684



Prepared By



**Slantec**

WOODLOT



© 2007 Penobscot County, Maine

Sheet Title

**Proposed Transmission Line Routes**

Project

**Penobscot County, Maine**

Date: 10/10/2007

Scale: 1" = 4,500'

Proj. No.: 072007

Page:

**1**

685



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STANDARD FORM NO. 64

UNCLASSIFIED

DATE 10/15/07

October 15, 2007

Lisa MacDonald  
Stantec Consulting  
30 Park Drive  
Topsham, ME 04086

Re: Request for Significant Wildlife Habitat Information  
Penobscot County, Maine

Dear Ms. MacDonald,

Enclosed please find a map in response to your request for information regarding Significant Wildlife Habitat in Penobscot County, *Maine*. The map shows your approximate project area and was generated from Maine Geographic Information System (GIS) data layers maintained by the Maine Department of Environmental Protection (DEP) and the Maine Department of Inland Fisheries and Wildlife (IF&W). Based on this information, it appears that *an Inland Wading Bird Waterfowl Habitat has been identified within both proposed project areas.*

*Please note that GIS datalayers for Vernal Pools are not currently available. The project area should be screened by a qualified professional during the appropriate identification period to determine if significant vernal pools are present*

Thank you for consulting the Department during the project planning process. Please feel free to contact the Department if you have questions or require additional information.

[Note that projects located entirely within unorganized territories are not subject to the Natural Resources Protection Act but may require permits from the Land Use Regulation Commission (LURC) and the Army Corps of Engineers.]

Sincerely,

*Amy Lemelin*  
Amy Lemelin  
Bureau of Land and Water Quality

10/15/07

ALBANY  
100 STATE STREET  
ALBANY, NEW YORK 12243  
518-462-2200  
WWW.ALBA-NEWYORK.COM

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Map Notes:

- Land Licensing Sites were either digitized on screen, or collected using a Garmin Etrex GPS Unit. Feature locations have an accuracy of +/- 15 meters.
- Background hydrologic, topographic and political features are from MEGIS data layers with an accuracy of +/- 40 feet.
- All spatial data is projected to NAD 1983 UTM Zone 19.
- All spatial data is specific to Maine DEP Bureau of Land and Water Quality. Data is maintained by the Maine DEP GIS Unit, Janet Parker and DLRR, Lisa-ly Keen.
- This map is to be used for reference purposes only and does not represent authoritative locations of displayed features.

Map Prepared By: Amy Lemelin  
10/19/2007  
Maine DEP, BLWQ,

Legend

- Railroads
- ▨ Shorebird roosting area
- ▨ General feeding area
- ▨ Island\_Waterfowl\_Wader\_Habitat\_Northern
- ▨ Island\_Waterfowl\_Wader\_Habitat\_Southern
- ▨ Coastal\_Nesting\_Islands
- Roads
  - Town Road
  - Town Road - Summer
  - Town Road - Winter
  - State-aided Highway
  - State Highway
  - Toll Highway
  - Private Road
  - Reservation Road
  - Seasonal Parkway
  - Roads\_E911
- Small Wetlands (points)
- ▨ Large Wetlands (poly)
- Streams
  - All other streams
- TYPE
  - Perennial
  - Intermittent
- ▨ Ponds and Lakes
- ▨ Rivers
- ▨ Old Towns (poly)
- ▨ FFW\_BCD\_points
- ▨ FFW\_BCD\_poly
- ▨ Bald\_Eagle\_EH\_lyr
- ▨ Deer\_Watering\_Areas

1 inch equals 6,557 feet

688



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Maine Field Office  
1168 Main Street  
Old Town, ME 04468-2023  
(207) 827-5938



MEFO log #53411-2008-SL-0036

November 5, 2007

Lisa MacDonald  
Stamtec  
30 Park Drive  
Topsham, ME 04086

Dear Ms. MacDonald:

Thank you for your letter requesting information or recommendations from the U.S. Fish and Wildlife Service. A list of federally-listed species in Maine is enclosed for your information. The following rare and endangered species are located within your project area:

Species	Location	State Status	Federal status
Bald eagle	Penobscot River	T	FSC
Yellow lampmussel	Penobscot and Mattawamkeag	T	FSC
Pygmy snakerail	Penobscot River	T	FSC
Brook floater	Penobscot and Mattawamkeag	T	FSC

E = endangered

T = threatened

C = candidate

SC = special concern

FSC = federal species of concern

D = delisted

Comments on listed species: See attached map

I recommend that you contact the Maine Department of Inland Fisheries and Wildlife for additional information on state-threatened and endangered wildlife and other wildlife species of special concern. The Maine Endangered Species Act may protect some of the species in your project area.

Mark Caron  
Maine Department of Inland Fisheries and Wildlife  
73 Cobb Rd.  
Enfield, ME 04493

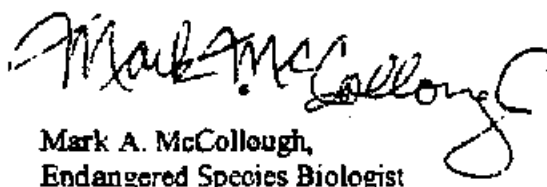
Phone: 207 732-4132

There are no known federal threatened or endangered plants in the project area, but there could be state-listed plants. You should contact the Maine Natural Areas Program for more information.

Raquel Goodrich  
Maine Natural Areas Program  
Department of Conservation  
93 State House Station  
Augusta, ME 04333  
Phone: 207 287-8044

A list of federally-listed species in Maine is enclosed for your information. If you have any questions, please call me at (207) 827-5938.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark A. McCollough". The signature is fluid and cursive, with a large, sweeping "C" at the end.

Mark A. McCollough,  
Endangered Species Biologist

Enclosure

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LAST obs: 2000-06-19

BALD EAGLE  
Last obs: 1998  
04-10-98

BALD EAGLE  
Last obs: 2000-07-24

BALD EAGLE  
Last obs: 1999-06-14

BROADTAILED  
SHADOWDRAGON  
Last obs: 1999-06-28

Mattawamkeag

BROOK FLOATER  
Last obs: 1992-08-20

BROOK FLOATER  
Last obs: 1994-10-04

Webster

Pit

BROOK FLOATER  
Last obs: 1994-09-08

BROOK FLOATER  
Last obs: 1994-09-08

YELLOW LAMP MUSSEL BROOK FLOATER  
Last obs: 1997-06-28; Last obs: 1997-06-28

BALD EAGLE  
Last obs: 1996-06-14

Chester

Winn

RYGMY SNAKETAIL  
Last obs: 1993-06-14

BROOK FLOATER  
Last obs: 1994-09-08

SEDGE WREN  
Last obs: 1991

CLAYTON'S COPPER  
Last obs: 2003-06-08

Lincoln

Lee

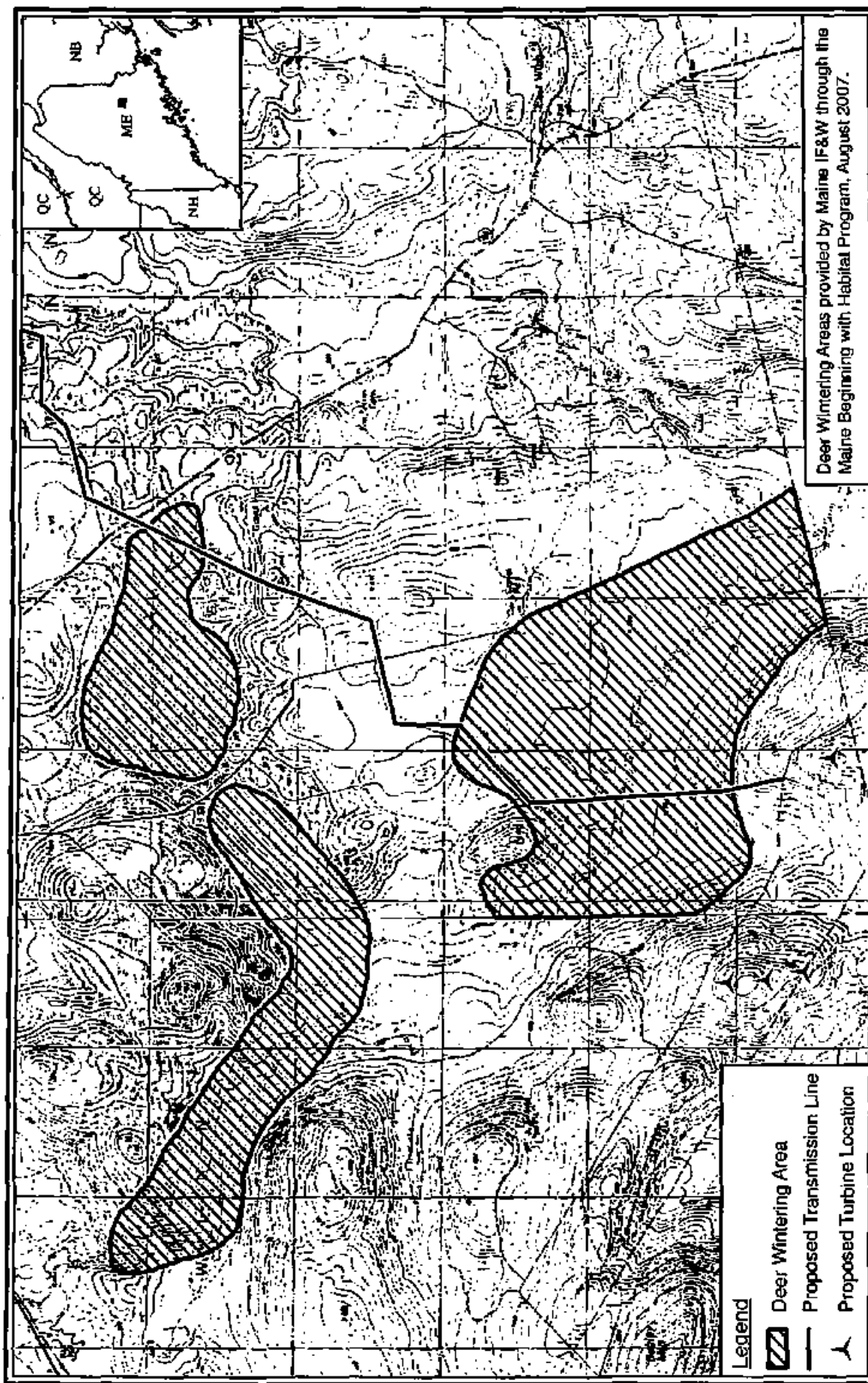
Maine



Area of detail

0 1 2 3 4 Miles



Date map made; file name; map maker; credits



Prepared By:	 <b>WOODLOT</b>	 <b>Stantec</b> 10/2008 PJT - Location map	Sheet Title:  <b>Deer Wintering Area Location Map</b>  Rollins Wind Project Lincoln, Maine	Date: 3/4/2009 Scale: 1" = 3,000' Proj. No.: 107206 Figure: 1

North Arrow

0 3,000 Feet

... 1941-1942 ...

DAVID F. LOTTELL

### Experimental Setup

April 23, 2008

Lisa MacDonald  
Stantec Consulting  
30 Park Drive  
Topsham, ME 04086

**RE: ROLLINS SOUTH WIND PROJECT, LINCOLN**

Dear Lisa:

Thank you for your letter, dated April 16, 2008, which requests information about potential significant wildlife habitats located within the site of your proposed project, Rollins South Wind Project, in the Town of Lincoln, Maine. According to our Geographic Information System (GIS) mapping database, there are areas of Inland Waterfowl and Wading Bird Habitat throughout the project site. Furthermore, an area of Essential Habitat for Bald Eagles is located on the southeast side of Upper Pond. Disturbance to these significant wildlife habitats should not occur; however, if development is planned within these habitat areas, an individual Natural Resources Protection Act (NRPA) permit will be required. It is strongly suggested that a pre-application meeting be scheduled prior to submittal of an application.

This opinion is based upon the materials submitted and is subject to change if the information is found to be inaccurate or incomplete. Changes or revisions to the above-mentioned laws or regulations may affect the relevance of this opinion. This opinion does not imply conformance with any other local, state or federal requirements.

If you have any further questions, please feel free to contact me at (207) 287-7898 or via email at [Beth.Callahan@maine.gov](mailto:Beth.Callahan@maine.gov).

Sincerely,

Ben Callahan

**Beth Callahan**  
Project Manager  
Division of Land Resource Regulation  
Bureau of Land & Water Quality



694





JOHN ELIAS SALDASO  
STATE AGENT

PATRICK K. MOSCOWAN  
STATE AGENT

April 24, 2008

Lisa MacDonald  
Stantec Consulting  
30 Park Drive  
Topsham, ME 04086

Re: Rare and exemplary botanical features, Proposed Project, PN195600147, Lincoln, Maine

Dear Ms. MacDonald:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request of April 16, 2008 for information on the presence of rare or unique botanical features documented from the vicinity of the project site in the Town of Lincoln, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area and it should be considered if you choose to conduct field surveys.

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Letter to Lisa MacDonald  
Comments RE: Proposed Project, PN195690147 Lincoln  
Date: April 24, 2008.  
Page 2 of 2

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$75.00 for our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



Douglas Suitor  
Associate Information Manager  
Maine Natural Areas Program  
207-287-8044

[douglas.suitor@maine.gov](mailto:douglas.suitor@maine.gov)

Enclosures



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Maine Field Office - Ecological Services

1168 Main Street

Old Town, ME 04468

(207) 827-5938 Fax: (207) 827-6099

In Reply Refer To: 53411-2008-SL-0220

FWS/Region5/ES/MEFO

April 28, 2008

Lisa MacDonald  
Stantec  
30 Park Drive  
Topsham, ME 04086

Dear Ms. MacDonald:

Thank you for your letter dated April 16, 2008 requesting information or recommendations from the U.S. Fish and Wildlife Service. This letter provides the Service's response pursuant to Section 7 of the Endangered Species Act (ESA), as amended (16 U.S.C. 1531-1543), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250) and the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667d).

**Project Name/Location:** Rollins South wind project

Based on the information currently available to us, no federally threatened or endangered species under the jurisdiction of the Service are known to occur in the project area. Accordingly, no further action is required under Section 7 of the ESA, unless: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by the identified action.

Occasional, transient bald eagles (*Haliaeetus leucocephalus*) may occur in the area. Based on the information currently available to use, a bald eagle nest occurs on Upper Pond (see attached map). The bald eagle was removed from the federal threatened list on August 9, 2007 and is now protected from take under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. "Take" means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. The term "disturb" under the Bald and Golden Eagle Protection Act was recently defined within a final rule published in the Federal Register on June 5, 2007 (72 Fed. Reg. 31332). "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle; 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

TAKE PRIDE  
IN AMERICA

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Further information on bald eagle delisting and their protection can be found at  
<http://www.fws.gov/migratorybirds/baldeagle.htm>.

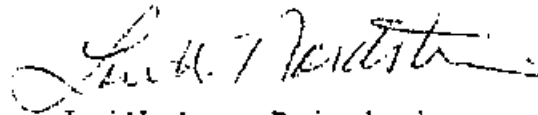
Please consult with our new national bald eagle guidelines, which can found at  
<http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>.

These Guidelines are voluntary and were prepared to help landowners, land managers and others meet the intent of the Eagle Act and avoid disturbing bald eagles. If you believe your project will result in taking or disturbing bald or golden eagles, please contact our office for further guidance. We encourage early and frequent consultations to avoid take of eagles.

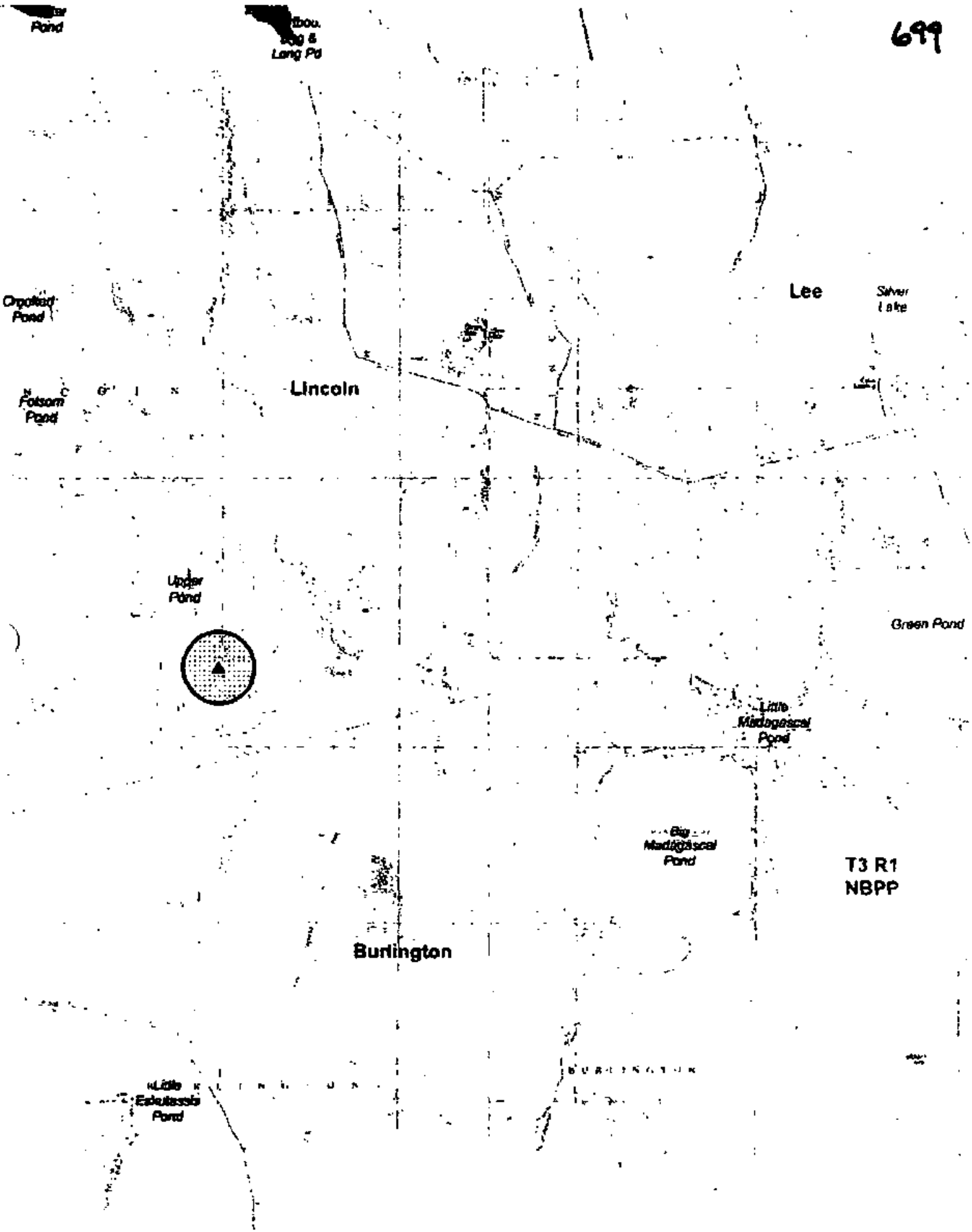
Please contact the Maine Department of Inland Fisheries and Wildlife and Maine Natural Areas Program for an up to date account of Significant Wildlife Habitats and state-listed species in the project area.

If you have any questions, please call Mark McCollough, endangered species biologist, at (207) 827-5938 ext.12.

Sincerely,

A handwritten signature in dark ink, appearing to read "Lori Nordstrom", with a stylized flourish at the end.

Lori Nordstrom, Project Leader  
Maine Field Office





GOVERNOR  
John E. Baldacci



COMMISSIONER  
Roland D. Mann

Wildlife Division  
73 Cobb Road  
Enfield, ME 04493

May 1, 2008

Lisa MacDonald  
Project Assistant  
Stantec Consulting  
30 Park Drive  
Topsham, Maine 04086

Dear Lisa:

As requested, MDIF&W has reviewed the maps you provided for any Essential and Significant Wildlife Habitats in Lincoln, Lee and Burlington, Maine. The following is a summary of our findings:

**Essential Habitats:**

Essential Habitats are defined as "areas currently or historically providing physical or biological features essential to the conservation of an endangered or threatened species in Maine and which may require special management considerations". Essential Habitat protection in Maine currently applies to bald eagle, roseate and least terns, and piping plover nest sites. Additional listed species may receive attention in the future.

**Transmission Line Project Area – Lincoln and Lee**

There are no Essential Habitats located within the designated area (please refer to the enclosed map).

**Project Area in Lincoln and Burlington**

There are no Essential Habitats within the project area, however, there is a Bald Eagle Essential Habitat (BE 468A) located to the west of the project area on Upper Pond (please refer to the enclosed map).

**Significant Wildlife Habitats:**

The Natural Resources Protection Act (NRPA), administered by the Maine Department of Environmental Protection (DEP), provides protection to certain natural resources including Significant Wildlife Habitats. Significant Wildlife Habitats are defined by the NRPA as:

Habitat for state and federally listed endangered and threatened species.

High and moderate value deer wintering areas (DWAs) and travel corridors

High and moderate value waterfowl and wading bird habitats (WWHs) including nesting and feeding areas

Shorebird nesting, feeding and staging areas

Seabird nesting islands

**Transmission Line Project Area - Lincoln and Lee**

There is a mapped Deer Wintering Area (DWA) 100212 in the northwest corner of the area on the south side of Caribou Pond

There are also four mapped Waterfowl and Wading Bird Habitats (WWHs) located within the mapped area. WWH (UMO-8715) is in the southwest corner (IFW-111721) is in the northeast corner and (UMO-8562) and (IFW-111756) are the connected WWHs on the east side of the project area (please refer to the enclosed maps)

**Project Area in Lincoln and Burlington**

There are no **Significant Wildlife Habitats** located within the project area, however, there are multiple Waterfowl and Wading bird Habitats located just to the west of the designated area

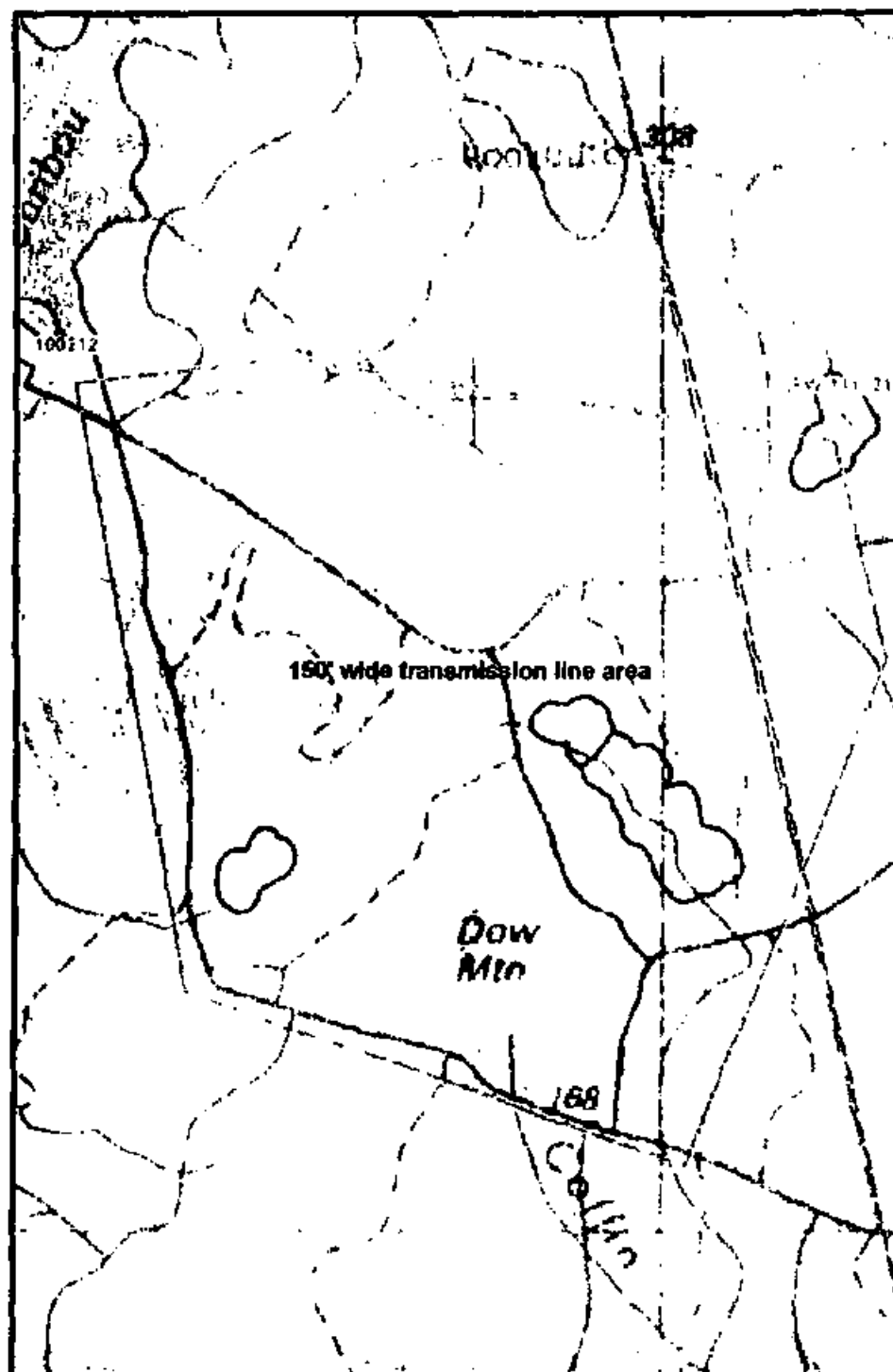
If you need any more information or clarification of the information provided please contact us at 732-4132 or at the address listed below. Thank you for your request for wildlife habitat information.

Sincerely,



Allen R. Starr  
Asst. Regional Wildlife Biologist  
Phone: 207-732-4132  
Fax 207-732-4405  
E-Mail: allen.starr@maine.gov

# Search for Wildlife Observations & Habitat - Request from Stantec Consulting for Lincoln, Maine



- Bald Eagle Nest Site
- Piping Plover / Least Tern Nesting, Feeding & Brood rearing Area
- Roseate Tern Nesting Area
- Deer Winter Area
- Inland Waterfowl / Wading Bird Habitat
- Tidal Waterfowl / Wading Bird Habitat
- Seabird Nesting Island
- Shorebird Area
- Biological Conservation Database Rare Species or Habitat Observation
- Township Boundary
- County

0 0.3 0.6 0.9 1.2 Miles

1:37,500

UTM Projection, Zone 19N, NAD83

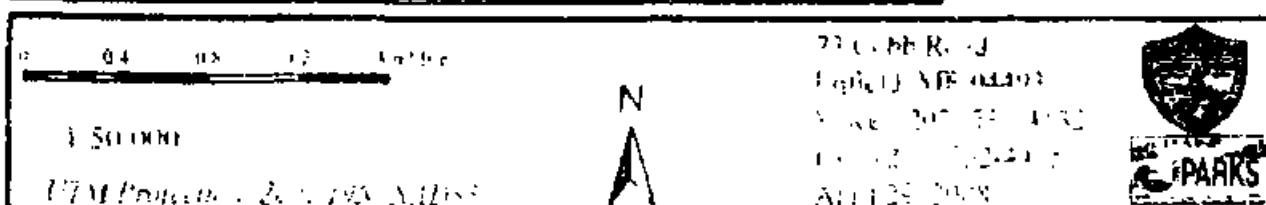
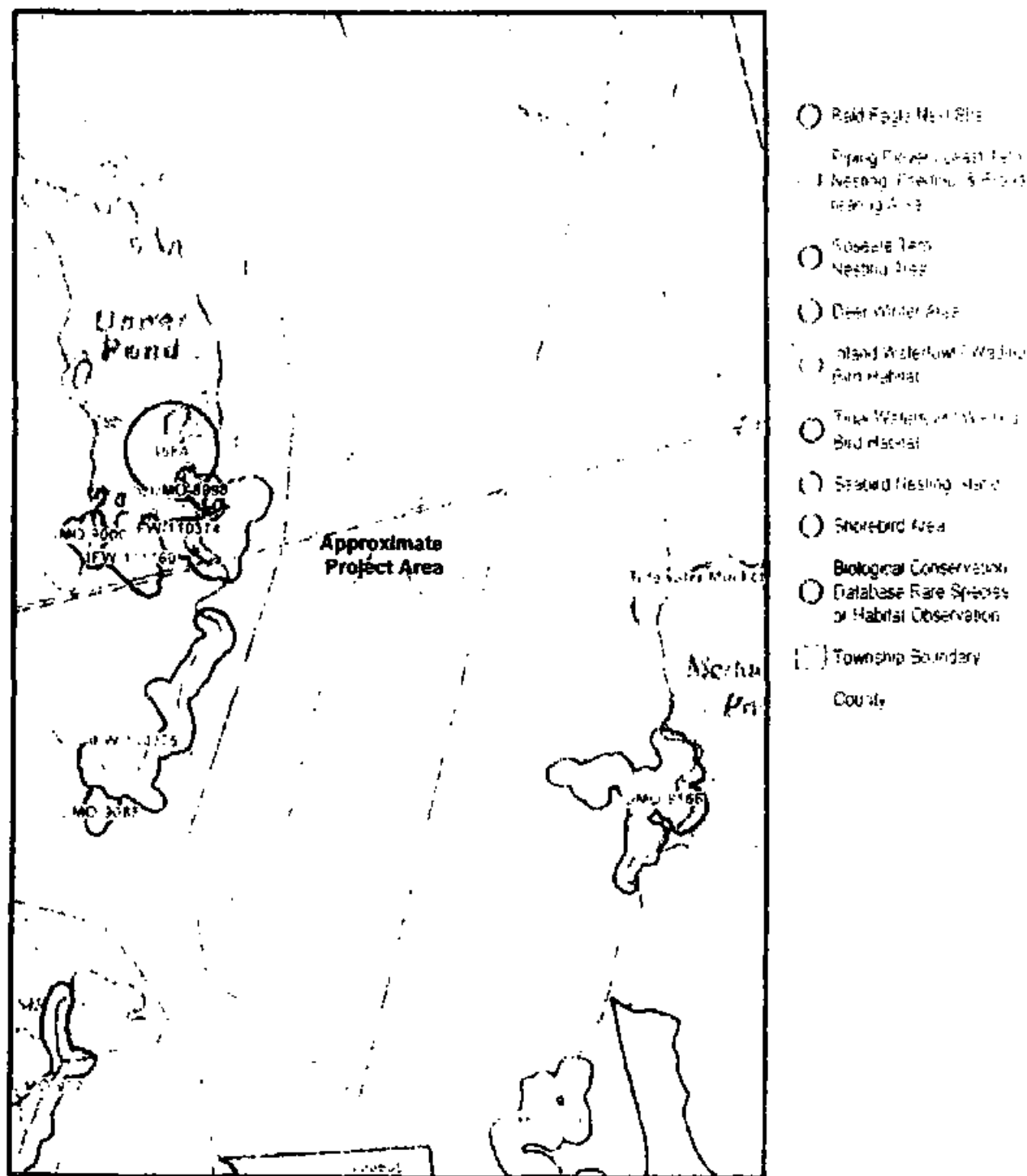


73 Cobb Road  
Enfield, ME 04493  
Voice (207) 732-4132  
Fax (207) 732-4405  
April 29, 2008





# Search for Wildlife Observations & Habitat - Request from Stantec Consulting for Lincoln and Burlington, Maine



704



**Stantec**

March 30, 2009

Becky Maddox  
Maine Department of Environmental Protection  
17 State House Station  
Augusta, ME 04333

**Subject: Proposed Best Management Practices, Rollins Wind Project**

Dear Ms. Maddox:

Per recent discussions with the Maine Department of Environmental Protection (MDEP) regarding MDEP's new Best Management Practices (BMPs) for Inland Waterfowl and Wading Bird Habitat (IWWH), attached please find the Evergreen Wind Power III, LLC (Evergreen III) proposed BMPs for the three IWWHs crossed by the Rollins Wind Project 115-kilovolt transmission line. (IWWH 205218, 205210, and 205257)

These BMPs substantially exceed the MDEP minimum recommended BMP, as follows.

- Instead of the MDEP recommended management of herbicide application within IWWHs, Evergreen III will commit to no herbicide application in IWWHs and will not mix or store herbicides 100 feet from the IWWH boundary.
- MDEP recommends no equipment refueling within 25 feet of the IWWH; Evergreen III will commit to a 100-foot setback for this activity.
- Evergreen III is submitting an invasive plant control program, not just for the IWWHs but for the entire line, that will include invasive plant monitoring and control annually for five years, and as needed thereafter.
- During initial clearing, Evergreen III will retain all species, including capable species, less than 8-10 feet in height.
- Post-construction, Evergreen III will allow the regeneration of capable species, as well as non-capable woody species, thus creating more diverse and denser cover.
- Evergreen III will use an 85 percent cover standard rather than the MDEP recommended 60 percent cover standard when evaluating the need for planting.

We believe these efforts will result in less impact to the functions and values of the IWWHs and a greater opportunity for these areas to have enhanced use by IWWH species. These commitments should factor strongly into MDEP's consideration of efforts to minimize impacts and analysis of appropriate compensation.

Sincerely,  
STANTEC CONSULTING

*Brooke E. Barnes*

Brooke E. Barnes  
Senior Project Manager

Cc: Ryan Chaytors, First Wind  
File 195600147

**BMP's for the IWWH's crossed by the Rollins 115 kV line**  
**Submitted March 30, 2009**  
**Evergreen Wind Power III, LLC**

For the IWWH's located at Route 168 and Salmon Stream, these BMP's are in addition to the buffer and vegetation management BMP's (Section 10), erosion control standards (Section 14) and groundwater protection measures (Section 15), all as described in the application.

**Pre-clearing:**

1. The boundary of the IWWH's will be clearing flagged and flagged travel lanes through the IWWH's established.
2. Trees and snags of sufficient diameter for nesting will be marked for topping and limbing, but not removal.
3. Site specific maps will be developed for each IWWH detailing the location and BMP's associated with the area.
4. An on site meeting will occur with the clearing crew prior to any clearing to review the goals, maps, flagging and BMP's for the area.

**During clearing:**

1. A representative of Evergreen III will be onsite during clearing of the IWWH's to ensure compliance with the clearing BMP's and to evaluate opportunities for further minimization and enhancement as the clearing occurs.
2. No clearing will occur between April 15 and July 31.
3. No slash or debris will be left within 50 feet of the wetland portion of the IWWH. All slash will be disposed on in accordance with Maine Forest Service Standards.
4. Clearing equipment will not be parked or refueled within 100 feet of the IWWH boundary.
5. All capable species 8-10 feet or taller will be cut at ground level, unless marked for topping as nesting trees during pre-clearing or existing snags that do not interfere with the transmission line. Non-capable species and growth less than 8-10 feet will be removed only for a travel lane.
6. Removal will be by hand cutting, or machine cutting where the vegetation can be reached from the travel way.

**During construction:**

1. IWWH boundaries will be remarked after clearing.
2. Prior to construction, a representative of Evergreen III will meet on site with the construction crew to review the IWWH areas and the BMP's that apply to those areas.
3. Construction equipment will not be parked or refueled within 100 feet of the IWWH boundary.

**Post construction:**

1. The boundaries of the IWWH's will be marked with signage.

2. No herbicides will be applied in the IWWH's as standard control measures. Herbicides may potentially be applied as a tool for control of invasive species. No herbicides will be stored, mixed or loaded within 100 feet of the IWWH boundary
3. Areas of soil disturbance within the right of way will be reseeded with a matrix mix of grass, wildflower and shrub seeds. Cleared but otherwise undisturbed areas may be seeded as well, depending upon the condition of the remaining vegetation.
4. Regrowth will be monitored at the height of the growing season in years 1, 3, and 5 after construction, and reseeded in the interim as necessary. If 85% aerial coverage of regenerating shrub or capable species vegetation is not underway within site appropriate portions of the corridor (e.g., areas other than open water or emergent marsh) within five years, Evergreen III will submit to the Department, for review and approval, a vegetation enhancement plan to achieve that goal.

**Invasive Species:**

Invasive species in the IWWH's will be controlled with the Invasive Species Management plan included in the application.

Rollins Wind Project  
34.5-Kilovolt Connector and 115-Kilovolt Transmission Lines  
Penobscot County, Maine

## **INVASIVE SPECIES MANAGEMENT PLAN**

Prepared for:  
**Evergreen Wind Power III, LLC**

Prepared by:  
**Stantec Consulting**

March 2009

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## 1.0 PROJECT BACKGROUND

The Rollins Wind Project (Project) is a 60-megawatt (MW) wind project with associated transmission lines located in Penobscot County, Maine. The Project also includes permanent meteorological towers, an electrical interconnection facility in Mattawamkeag, an electrical substation in Lee, and an operations and maintenance facility in Lincoln. The turbine portion of the project consists of 40 General Electric 1.5-MW turbines located in two clusters, Rollins North and Rollins South.

The transmission line portion of the Project is divided into two segments: an 8.8-mile, 115-kilovolt (kV) transmission line that will deliver electrical power from the proposed substation in Lee to the Line 56 transmission line in Mattawamkeag, and a 5.4-mile, 34.5-kV connector line between Rollins North and Rollins South. The 115-kV transmission line will travel through Winn and Mattawamkeag and will consist primarily of two-pole, H-frame structures with three-pole structures as necessary at critical points. The 34.5-kV connector line will be primarily single-pole structures, located in Lincoln.

Both sections of transmission line will consist of newly cleared right-of-way (ROW). The proposed corridors primarily run through undeveloped forest, occasionally crossing existing paved and dirt roads, agricultural fields, and numerous all-terrain/snowmobile vehicle trails. Natural community features present within the study area include forested uplands and wetlands, scrub-shrub wetlands, emergent wetlands, and stream systems.

This Wetland Invasive Species Control Plan (Plan) addresses the anticipated procedures for managing invasive species and enhancing the value of wetlands located within the transmission line ROW. This Plan is designed to supplement the existing ROW management plan as detailed in Section 10 of the combined Site Location of Development Act (SLODA)/Natural Resources Protection Act (NRPA) permit application for the Project.

## 2.0 MANAGEMENT PLAN OBJECTIVES

The majority of the proposed transmission line routes currently run through forested uplands and wetlands. Vegetation clearing will be required for the construction of the lines. The communities will be permanently converted from forested systems to communities dominated by shrubs and herbaceous vegetation. Because the new ROWs will be affected by the construction of the transmission lines, they could be subject to colonization by invasive species. Additionally, for those areas in which invasive species are already present, construction disturbance could promote additional colonization or the spread of invasive species to adjacent areas.

During their review of the SLODA/NRPA permit application, the U.S. Army Corps of Engineers (Corps) expressed concerns regarding the potential spread of invasive plant species along the new segments of ROW. Accordingly, the Corps requested that the applicant develop this Plan, including a program for post-construction monitoring of invasive species and implementation of appropriate invasive species controls.

The overall goal of this Plan is to preserve and enhance the functions and values of the wetlands and uplands along the transmission line ROWs, focusing on those areas in which invasive species were not present prior to the construction of the lines. While complete eradication of invasive species is unlikely, this Plan is designed to limit the spread of these species as much as possible. The Plan includes the following steps:

- Identify locations along both ROW segments in which invasive species presently exist in order to develop a baseline for future monitoring;
- Identify the invasive plant species that may occur in wetlands and uplands along both segments of transmission line;
- Provide a plan for monitoring the status of invasive species along the ROWs and coordinate with the involved agencies regarding the results of the monitoring;



- Identify appropriate strategies (e.g., mechanical cutting, herbicide application, biological control, or a combination thereof) for controlling and/or limiting the spread of invasive species along the ROW; and
- Incorporate invasive plant species control strategies in the existing ROW vegetation management program for the Project.

### 3.0 INVASIVE SPECIES BACKGROUND

Invasive plants are non-native species whose introduction to an area causes or is likely to cause environmental or economic harm. Invasive plants often lack natural predators and can successfully colonize and thrive beyond their natural ranges, often out-competing native plants. Generally, these species have competitive adaptations, aggressive reproductive strategies, and efficient dispersal methods. The spread of invasive plant species in both wetland and upland areas is a concern for both biological reasons (e.g., threaten global biodiversity, reduce animal habitat value) and cultural/economic reasons (e.g., adverse aesthetic effects, reduced recreational opportunities).

The Maine Natural Areas Program (MNAP) maintains a list of invasive plants known to be present in Maine. The U.S. Department of Agriculture, Natural Resources Conservation Service also maintains a list of noxious plants for the country and each state. Table 1 below presents the common invasive species likely to be present in the Project transmission line ROWs based on a review of these lists, as well as on field surveys conducted by Stantec Consulting (Stantec) within the Project area.

**Table 1. Invasive Plant Species Likely to be Associated with the Rollins Wind Project Transmission Lines**

Common Name	Scientific Name
Norway Maple	<i>Acer platanoides</i>
Garlic Mustard	<i>Alliaria petiolata</i>
Japanese Barberry	<i>Berberis thunbergii</i>
Russian Olive	<i>Eleagnus angustifolia</i>
Autumn Olive	<i>Eleagnus umbellata</i>
Glossy Buckthorn	<i>Frangula alnus</i>
Morrow's Honeysuckle	<i>Lonicera morrowii</i>
Tatarian Honeysuckle	<i>Lonicera tatarica</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Common Reed	<i>Phragmites australis</i>
Wood Bluegrass	<i>Poa nemoralis</i>
Common Buckthorn	<i>Rhamnus cathartica</i>
Multiflora Rose	<i>Rosa Multiflora</i>
Japanese Knotweed	<i>Fallopia japonica</i>
Black Swallowwort	<i>Cynanchum louisae</i>
Oriental Bittersweet	<i>Celastrus orbiculatus</i>
Coltsfoot*	<i>Tussilago farfara</i>

\* Coltsfoot is not currently listed as an invasive species in Maine by MNAP. However, it is considered a noxious weed in Massachusetts and is listed on the *Massachusetts Prohibited Plants List* as compiled by the Massachusetts Department of Agricultural Resources.

### 4.0 EXISTING CONDITIONS

During 2007 and 2008, Stantec performed wetland delineations, vernal pool surveys, and rare, threatened, and endangered (RTE) species surveys along both segments of transmission line for the Project. The majority of the wetlands identified were forested wetlands, with a smaller number of emergent and scrub-shrub wetlands. During the course of each survey, Stantec documented the

occurrences of invasive plant species. The results of these surveys are presented in Appendix 7-1 of the SLODA/NRPA permit application.

Across both segments of proposed transmission line, invasive species were documented in only one wetland. Morrow's honeysuckle was documented in wetland TN034. Coltsfoot was also identified within the Project area, specifically along the connector transmission line, but it was not located in a mapped wetland. Morrow's honeysuckle was also documented at the southern end of the Rollins North Project area. However, this species location is outside of the transmission line ROWs. The relatively undeveloped landscape surrounding the two transmission line segments most likely accounts for the low number of invasive species present.

## 5.0 INVASIVE SPECIES MONITORING PROGRAM

### 5.1. Goals and Objectives

The applicant is committed to performing ROW monitoring to assess the status of invasive species along the two segments of transmission line for the Project and to identify areas where invasive species control measures will be required to maintain or enhance the functions and values of uplands and wetlands. This monitoring program will target the invasive species identified in Table 1 and will provide recommendations that will be used to select and implement appropriate control options for each invasive species location.

The objectives of the monitoring program will be to:

- Update the status of invasive species along the two ROWs in order to target the areas where control measures will be required;
- Define the types of control measures that are most appropriate for each invasive species location; and
- Provide input in order to incorporate the invasive species control measures into the overall Vegetation Management Plan (VMP; Appendix 10-1 of the SLODA/NRPA permit application).

### 5.2. Methods

The applicant will retain a qualified, independent researcher to conduct the monitoring program. The monitoring program will consist of field surveys of each segment of ROW to determine whether invasive species are present and to provide recommendations concerning control options. For each invasive species location, researchers will complete invasive species monitoring forms and take representative photographs. Any conditions that would influence the use of a particular type of invasive control method would also be noted. Populations of invasive species identified immediately adjacent to the Project area will also be noted, although control strategies for these populations will not be developed. Field surveys will be conducted during the growing season when plant species are most easily identifiable. The monitoring effort will be scheduled to allow time for invasive species treatments to be implemented in the same growing season.

Invasive species monitoring along the two sections of ROW will be conducted in the first year following the completion of Project construction and for four years thereafter (i.e., a total of five years of annual monitoring). If during the first five years of monitoring densities of invasive species are found to be low, monitoring frequency may be reduced to every other year. The goal of the five-year monitoring effort will be to identify locations where invasive species are present so that control measures can be implemented as soon as practical, particularly in any areas where invasive species are beginning to colonize as a direct result of construction of the project. The five years of monitoring will also allow for an evaluation of the effectiveness of the control measures. After the completion of five years of monitoring and treatments, this Plan will be integrated into the applicant's existing VMP. The VMP states that vegetation maintenance will generally be carried out on a four-year or five-year maintenance cycle, depending on growth, weather, geographic location, and corridor width. Once incorporated into the VMP, this invasive species monitoring program should occur in the year prior to routine vegetation maintenance work so that treatment recommendations can be included with the regular maintenance effort. Over time, as invasive species control becomes a standard component of the applicant's ROW vegetation management

program, monitoring and control schedules may be adjusted to respond to site-specific issues (e.g., monitoring less frequently as densities decrease, instituting treatment in consecutive years to control an aggressive population).

### 5.3. Monitoring Report

The results of each year of invasive species monitoring will be detailed in a brief report that will include a summary of the field results, a table that identifies the locations of invasive species along the two ROWs, copies of the monitoring forms, and representative photographs. Comparisons will be made as to whether invasive species are becoming more or less prevalent, based on a review of the pre-construction data and on the results of the previous year's monitoring results. The monitoring report will include recommendations regarding where invasive species control measures are required, the suggested type of control strategy, and the schedule for the implementation of control measures.

During the first five years of monitoring, reports will be submitted annually. If it is determined that monitoring will not be required every year, reports will only be submitted in years when monitoring has occurred. The monitoring report will be provided to the Corps and the Maine Department of Environmental Protection by March 31 of the year following the year in which the monitoring was conducted (e.g., for monitoring conducted in the summer of 2010, the monitoring report will be submitted by March 31, 2011). See Table 2 below for the anticipated monitoring schedule. If requested, the applicant and its contractors will be available to meet with the involved agencies to review the results of the invasive species monitoring and control program. The purpose of the meetings would be to assess the status of the program and the effectiveness of the monitoring and control methods.

**Table 2. Anticipated Invasive Species Monitoring Schedule**

Year	Date of Monitoring	Monitoring Report Submitted
1	Summer 2010	March 2011
2	Summer 2011	March 2012
3	Summer 2012	March 2013
4	Summer 2013	March 2014
5	Summer 2014	March 2015

Implementation of invasive species control measures will be based on the results of the monitoring and will not require approval from the regulatory agencies. The application of control measures will be performed pursuant to any standard permit and safety requirements governing such activities.

## 6.0 INVASIVE SPECIES CONTROL STRATEGIES

### 6.1. Goals and Objectives

To develop an effective approach for controlling invasive species along the ROWs, various factors must be considered. These include:

- The linear nature of the Project;
- The characteristics and functions/values of the wetlands and uplands along the ROWs;
- The invasive species that are present and their density within the ROWs;
- Sensitive areas along the ROWs, including wetlands, streams, vernal pools, RTE species, and visual buffers;
- Adjacent land use developments, which can affect the value of wetlands on the ROW and can influence the choice of control strategies; and
- The cooperation of the landowner and the potential lack of complete land use control, depending on the conditions of the ROW easements across private properties.

As a result of these factors, it should be recognized that invasive species control measures may not be practical or highly effective in all areas along the ROWs. Additionally, complete eradication of invasive species is unlikely given the aggressive nature of these species.

## 6.2. Types of Control

In general, there are three types of invasive species control methods: mechanical, chemical, and biological. These control methods may be combined to provide a more effective control strategy.

Mechanical control measures such as digging, pulling, and cutting may be effective in controlling isolated invasive plants or small stands of plants. However, such techniques may be labor-intensive and may be impractical in areas with dense infestations of invasive species such as common reed (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*), and garlic mustard (*Alliaria petiolata*).

Chemical control (herbicides) is the most common alternative used for controlling invasive species along ROWs. If used selectively and in limited areas (i.e., not in wetlands with standing water or in streams), herbicides can be successfully applied in an environmentally-sound manner. In addition, herbicide applications often provide the most cost-effective method for controlling dense infestations of invasive species.

Biological controls can be effective in controlling purple loosestrife under certain conditions but are not yet proven for the control of other species. Consultation with the Corps indicates that species such as loosestrife beetles (*Galerucella californiensis* and *Galerucella pusilla*) may be useful in controlling purple loosestrife. At this time, purple loosestrife has not been identified within the Project area ROWs; however, it has been observed nearby. The use of loosestrife beetles is unlikely to be recommended as long as populations of the plant remain small.

## 6.3. Schedule for Implementation of Invasive Species Controls

The applicant recognizes that early treatment measures can prevent the spread of invasive species, particularly in areas where such species were not present prior to construction of the transmission lines. As a result, the applicant will implement an aggressive invasive control approach in the first five years immediately following the completion of construction. Particular treatment efforts will be focused on preserving and enhancing the functions and values of the wetlands and uplands in the ROWs.

Based on the results of the monitoring program conducted in each of the first five years after construction, the applicant will schedule invasive species treatment measures annually, as soon as practical after the field monitoring recommendations are received. The schedule for the treatment will depend on the types of controls recommended. For example, mechanical removal of certain species can be performed almost any time of the year when plant species are identifiable, while herbicide applications and biological controls require that work be done during the growing season to be most effective. Over time, the applicant expects that the invasive species treatment program will be integrated into the overall ROW management effort.

Depending on the results of the monitoring, the applicant may contract a field biologist or wetland scientist to work with its ROW management contractor to oversee the implementation of invasive species control measures, to recommend methods for maximizing the potential re-establishment of native vegetation, and to suggest wetland plantings to enhance habitat values. For locations where invasive species controls are implemented, monitoring performed in subsequent years will serve to assess the effectiveness of such measures.

## 6.4. Control Strategies

Although specific treatments will be refined based on the results of the monitoring program, it is anticipated that the most effective general approach for controlling invasive species along the two sections of ROW will likely be a combination of mechanical removal and application of herbicides in selected locations during the growing season. Repeated spot herbicide applications may be required in subsequent growing seasons in order to achieve effective control. Based on the relatively low numbers of invasive species documented in the proposed ROW corridors, large-scale control is not anticipated.

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The need for and types of chemical control of invasive species will be carefully evaluated, particularly in sensitive areas such as wetlands, streams, and vernal pools, and areas where the ROW is not owned by the applicant. Additionally, invasive species may be present in wetland and upland areas that are outside of the defined ROWs. The applicant has no authority to attempt to control invasive species that may be present in adjacent areas outside of the ROWs.

Herbicide applications will be performed according to applicable laws and regulations put forth by the Maine Bureau of Pesticides Control, MDEP, and the United States Environmental Protection Agency. The type of herbicide(s) to be used, method of application, and schedule for application will be determined based on the locations of the targeted areas and the particular invasive species to be controlled.

Similarly, the use of any biological control measures will be coordinated with MDEP and the Corps. The species used for biological control will be obtained from approved sources and released pursuant to specifications.

## **Avian and Bat Casualty Monitoring Protocol**

**Rollins Wind Project  
Evergreen Wind Power III LLC  
September 2008**

### **Objective**

The objective of this casualty monitoring protocol is to document injuries and fatalities of birds and bats once the Rollins Wind Project becomes operational.

### **Background**

This post-construction monitoring protocol is based on the development of similar post-construction monitoring plans at existing or proposed projects in Maine and Vermont. Those plans were developed in consultation with natural resource agencies in both states. The draft guidance of the Maine Wind Power Advisory Group was also considered. This draft guidance includes contributions by several recognized experts in the field of wind energy and wildlife interaction and other State-sponsored wind-wildlife survey protocols, such as the Pennsylvania Game Commission's post-construction monitoring protocols. Finally, other recent studies of bird and bat fatalities at wind power projects in the U.S. and Europe were reviewed with regard to methods and search techniques (e.g., Arnett et al. 2008, Arnett 2005, Kerns and Kerlinger 2004, Barrios and Rodriguez 2004, de Lucas et al. 2004, Krewitt and Nitsch 2003, and Osborn et al. 2000).

### **Proposed Casualty Monitoring Protocol**

At a minimum, Evergreen III proposes to fund and conduct the following wildlife casualty monitoring protocols during Year 1 operations:

- 1) Standardized searches during peak activity periods for birds and bats (spring migration, summer nesting and pup-rearing, late-summer swarming, and fall migration);
- 2) Searcher efficiency trials to estimate the percentage of carcasses found by searchers in each habitat surrounding the turbines; and
- 3) Carcass removal trials to estimate the length of time that carcasses remain in the field for possible detection.

Other survey methods will also be employed in Year 1. These methods will include documentation of casualties outside the standard search plots and monitoring of weather conditions (see Additional Survey Methods, below). A more detailed work scope for

these surveys will be developed in consultation with the Maine Department of Inland Fisheries and Wildlife (MDIFW) between the time that construction is initiated and the first spring survey period that occurs after construction (currently planned as Spring 2010). Timing of the final work scope development in such a way will allow for the incorporation of survey results from two years of post-construction monitoring at the Mars Hill and one year of monitoring at the Stetson Mountain Wind Farm.

In addition, Evergreen III proposes to conduct follow-up monitoring in two subsequent years (e.g., Year 3 and Year 5). The scope and timing of the follow-up monitoring will be determined in cooperation with the Maine Department of Inland Fisheries and Wildlife (MDIFW) based on the Year 1 findings, with consideration of current research priorities within the industry and the region.

#### **Standardized Searches**

Monitoring will entail regular, systematic searches of the area beneath a subset of turbines and the two guyed meteorological measurement towers (met towers) by trained technicians. As requested by MDIFW, search preference will be given to those turbines with the largest clearings/openings, and the same locations will be maintained throughout the duration of the monitoring.

#### **Schedule and Search Effort**

Monitoring will be conducted during the first full year following completion of the project to operational status. Subsequent survey efforts will be evaluated based upon the number of casualties documented during the initial year of survey, indications of correlations between casualties and weather, or indications of correlations between casualties and bird or bat activity.

Four distinct survey periods will occur. The timing of these periods will result in a total of 24 consecutive weeks of surveys. These survey periods are as follows:

- April 15 – May 31 for spring migration;
- June 1 – July 14 for summer bird nesting and bat pup-rearing;
- July 15 – August 15 for late-summer bat activity; and
- August 15 – October 15 for fall bird and bat migration.

During each time period, a total of 20 turbines (50% of all turbines) will be searched weekly. Additionally, the cleared area under one of the met towers (which primarily lies directly underneath the guy wires) will be searched once per week. The turbines searched will be randomly selected, though the selection will be stratified to ensure that the proportion of lighted and unlighted turbines in the searched set will be proportional to the entire project.

#### **Search Plot Sizes**



Fatalities may be found at considerable distances from the base of the turbine, *e.g.*, at distances equal to or greater than the total height of the turbine and rotor, commonly in the range of 300-400 feet (Erickson *et al.* 2004, 2003 and 2000, Johnson *et al.* 2000a and 2000b). The GE 1.5 MW turbines proposed for the Rollins Wind Project have a maximum structural height of approximately 119 m (389') for the tower and rotor combined. Extending outward from the base this distance would yield a plot size significantly larger than the laydown area that will be cleared and leveled for each turbine (typical diameter of up to 75 m or 250 feet). For example, a square plot based on the full tower height would measure approximately 238 m (780') on a side, and amount to approximately 14 acres. Plots of this size at Rollins Mountain would include substantial areas of mature and mixed age forest cover and steep terrain for many turbines. In comparison, many of the published studies conducted at existing projects in the western U.S. are situated in relatively level agricultural landscapes, where searches are not hindered by terrain or tree cover.

As noted in the draft Maine guidelines, conducting searches at this level of intensity may simply be impractical in hilly and forested terrain. For similar reasons, Kerns *et al.* (2005) scaled down their search areas in consideration of existing site constraints. Offsetting this problem somewhat is the fact that most fatalities are being found much closer to the turbines. For example, working at the Meyersdale project in Pennsylvania, Kerns and Kerlinger (2004) reported that the majority of bird and bat fatalities were found within about 30 m (100') of the turbine bases, and Kerns *et al.* (2005) reported that greater than 80 percent of bat fatalities were found within 40 m (131') of turbines at Meyersdale, PA and Mountaineer, WV. The NEG Micon 1.5 MW wind turbines at Meyersdale and Mountaineer are similar in size to those proposed for Rollins Mountain.

In light of the above, options for tailoring the monitoring methods at the Rollins Wind Project have been considered. It is currently anticipated that the standardized searches will focus on monitoring the cleared and leveled lay-down areas around each selected turbine and applying a correction factor to account for fatalities that fall outside of the smaller search plots. The methods for calculating this correction factor will be determined through further discussions with MDIFW and will incorporate survey results targeting this issue at turbines located in field habitat at the Mars Hill Wind Farm in 2008. In addition, the group of turbines selected can be weighted to include those turbines located in the direct center of the lay-down areas to maximize the chances of fatalities falling within these areas where carcasses are easier to find.<sup>1</sup>

#### Search Timing and Frequency

As noted above, systematic searches will be conducted weekly 20 turbines (50% of all turbines) and one met tower during four survey periods. These survey periods are essentially consecutive time periods ranging from 4 to 8 weeks in length that represent different time periods in the activity and habits of birds and bats. The result will be

<sup>1</sup> The effect of targeting 'centered' turbines on overall survey results is currently being investigated during the 2008, Year 2 monitoring at the Mars Hill Wind Farm.

approximately 24 weeks of consecutive casualty monitoring and a total of 480 individual turbine searches and 24 met tower searches.

#### Standardized Searches

Plots will be searched by walking along parallel transects located at regular intervals across the turbine laydown area. Initially, transects will be set at 6-8 meters apart. A searcher will walk at a rate of approximately 45-60 meters a minute along each transect, searching on both sides out to 3-4 meters for casualties. Depending upon whether casualties are found, it should take an average of 60 minutes to search each plot and then travel to the next. The distance between transects will be modified, if needed, based on vegetation development within the plots.

All casualties found will be documented on standardized field forms, photographed, collected and, if a state- or federally-listed species, reported within 24 hours of identification. The type of observation or condition of carcasses will be recorded, such as intact carcass, scavenged, or feather spot. The bearing to the center of the wind turbine being searched will be recorded and the distance to the turbine will be determined using a laser range finder and recorded.

All casualties found incidentally during normal on-site operations at the project will also be recorded and collected (only at turbines and along roads not included as search sites). Operations personnel will be instructed on the proper handling and notification requirements for these occurrences.

#### **Searcher Efficiency Trials**

Searcher efficiency trials will be conducted in the same area as the searches to estimate the percentage of avian and bat casualties that are found by searchers. The trials will consist of periodic placement of carcasses at the search turbines the night before searches occur (to reduce the likelihood of scavenging). Carcasses will be placed within all available 'search habitats' under the turbines, including the gravel access way immediately surrounding each turbine and the restored (loamed, seeded, and mulched) portions of the lay-down areas. Searchers will be unaware of the timing of these trials. Over the course of the full survey period a target of 50 carcasses (targeting 25 birds and 25 bats) will be placed in the search plots. The number of carcasses placed for searcher efficiency trials will be modified, if necessary, based on the number of searchers used over the course of the surveys.

The carcasses used for these trials will be obtained during earlier searches at Rollins or other facilities and will be marked with a small piece of black electrical tape placed around a leg. If too few carcasses are available then surrogate species of similar size as native species will be obtained. Estimates of searcher efficiency will be used to adjust for detection bias using methods similar to Kerns et al. (2005).

#### **Carcass Removal Trials**

Two carcass removal trials will be performed during the survey, one in spring and one in fall, independently of the searcher efficiency trials. The objective will be to estimate the percentage of bird and bat fatalities that disappear from study plots due to scavengers. Estimates of carcass removal will be used to adjust the number of carcasses found, thereby correcting for this removal bias.

For each trial, a minimum of 6 but preferably 25 carcasses (species composition as noted for searcher efficiency trials), will be placed near search plots (but not in plots to avoid contamination from blowing feathers, etc.). All birds will be checked on days 1, 2, 3, 4, 5, 7, 10, and 14, or until all evidence of the carcass is absent. On day 14, all carcasses, feathers or parts will be retrieved and properly discarded.

### **Additional Survey Methods**

Some additional field efforts to monitor bird and bat activity and weather conditions will also be performed during the post-construction casualty monitoring surveys. These efforts are designed to evaluate the efficacy of pre-construction survey methods to predict actual numbers of fatalities resulting from a proposed wind development.

These efforts will be based on the pre-construction surveys conducted at Rollins Mountain and trends in recent post-construction surveys conducted in other parts of the eastern United States, including West Virginia, Maryland, and New York, but more importantly at Mars Hill and Stetson Mountain. These surveys could incorporate bat detectors and radar operated at very specific times and for brief time periods, if deemed necessary, appropriate, and able to answer any small, targeted concerns.

Finally, weather conditions will be recorded throughout the duration of the survey effort to evaluate if correlations with casualty exist. Weather parameters used that will be recorded at the on-site met towers or at the wind turbines themselves will include wind speed and wind direction. Temperature at or near hub height and near the ground will also be recorded. Additional weather data that will be recorded will include barometric pressure, relative humidity, and precipitation.

### **Reporting**

A report will be provided after each full year (spring-fall) of monitoring. The report will summarize the methods and results of monitoring. Estimates of the total number of wind turbine-related fatalities will be based on three components: 1) observed number of carcasses, 2) searcher efficiency expressed as the proportion of trial carcasses found by searchers, and 3) removal rates expressed as the length of time a carcass remains in the study area and is available for detection by searchers, and possibly factors such as the 4) proportion of casualties likely to land or move outside the plot (such as forested portions beyond the cleared area surrounding turbines), 5) an estimate of the number of carcasses found by observers where cause of death could not be attributed to wind energy development, and calculations of the number of bird and bat fatalities on a per turbine per

year basis or other possible measurement methods (i.e. per MW per year, etc.). Calculation methods are presented in Kerns et al. (2005).

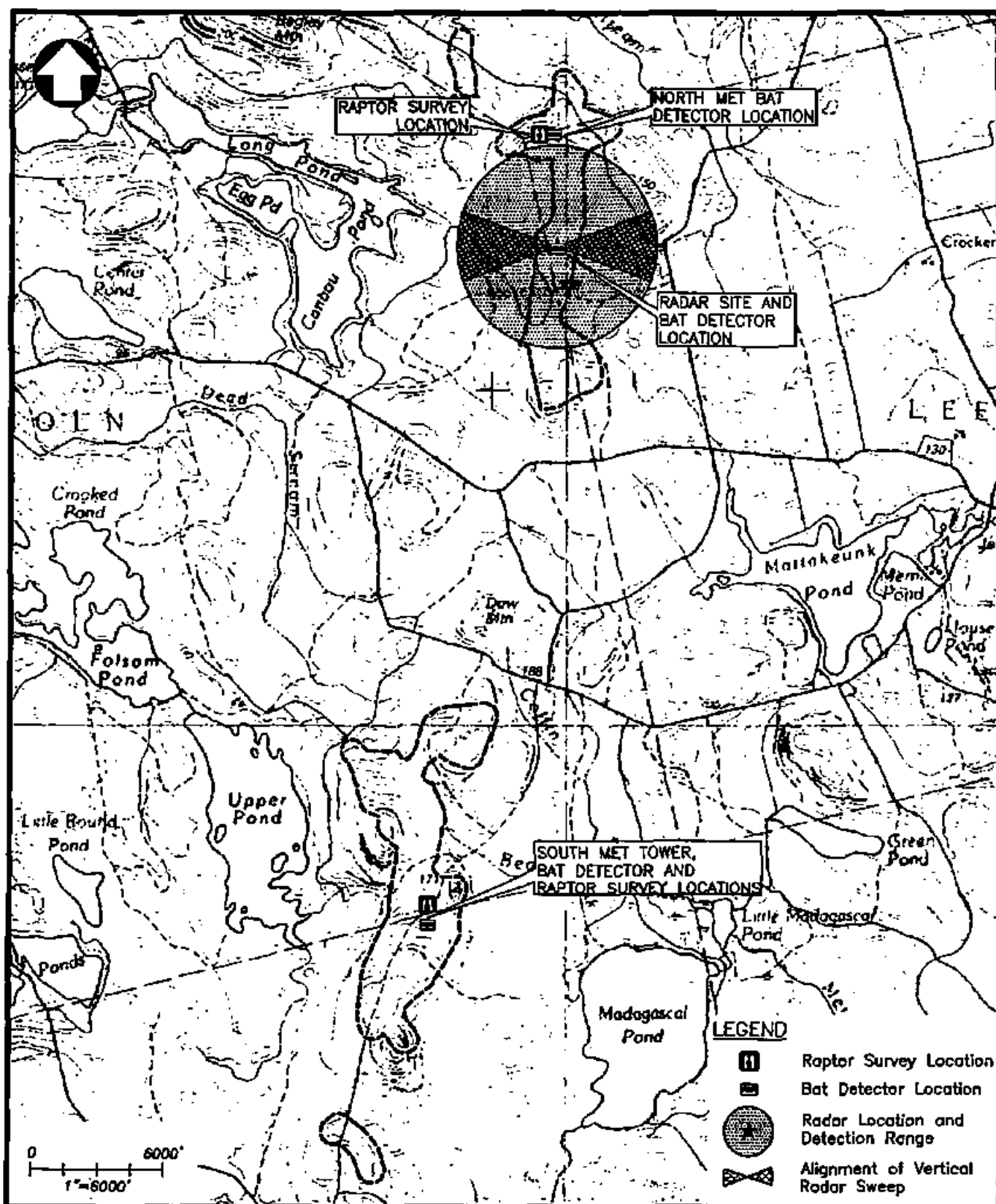
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PREPARED BY:



Stantec

165600147-7321-PCS survey map

SHEET TITLE:

## Raptor, Bat and Radar Survey Location Map

PROJECT:

Rollins Wind Project  
Lincoln, Maine

DATE: July 3, 2008

SCALE: 1"=6000'

PROJ. NO.: 195600147

FIGURE:

2-1

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